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Page 1 of 26

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Date: June 14, 2005

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Examiner: W. Briney III  
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Art Unit:  
2644

From:  
Alan Pedersen-Giles

Fax:  
703-633-3303

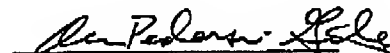
M/S:

Subject: UNIVERSAL TELEPHONY INTERFACE POLARITY DETECTOR  
Application No.: 09/996,255; Inventors: John H. LIEDER et al.  
Filed: November 28, 2001 Docket No. 42.P10109

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Fax Cover Sheet (1 page)  
Fee Transmittal Form (1 page)  
Transmittal Form (1 page)  
Appeal Brief (23 pages)

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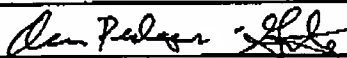
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<b>TRANSMITTAL FORM</b>  <small>(to be used for all correspondence after initial filing)</small>	Application Number	09/996,255	
	Filing Date	November 28, 2001	
	First Named Inventor	John H. LIEDER	
	Art Unit	2644	
	Examiner Name	W. Briley III	
Total Number of Pages in This Submission	26	Attorney Docket Number	42.P10109

ENCLOSURES (Check all that apply)		
<input checked="" type="checkbox"/> Fee Transmittal Form <input type="checkbox"/> Fee Attached <input type="checkbox"/> Amendment/Reply <input type="checkbox"/> After Final <input type="checkbox"/> Affidavits/declaration(s) <input type="checkbox"/> Extension of Time Request <input type="checkbox"/> Express Abandonment Request <input type="checkbox"/> Information Disclosure Statement  <input type="checkbox"/> Certified Copy of Priority Document(s) <input type="checkbox"/> Reply to Missing Parts/ Incomplete Application <input type="checkbox"/> Reply to Missing Parts under 37 CFR 1.52 or 1.53	<input type="checkbox"/> Drawing(s) <input type="checkbox"/> Licensing-related Papers  <input type="checkbox"/> Petition <input type="checkbox"/> Petition to Convert to a Provisional Application <input type="checkbox"/> Power of Attorney, Revocation <input type="checkbox"/> Change of Correspondence Address <input type="checkbox"/> Terminal Disclaimer <input type="checkbox"/> Request for Refund <input type="checkbox"/> CD, Number of CD(s) _____ <input type="checkbox"/> Landscape Table on CD	<input type="checkbox"/> After Allowance Communication to TC <input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences <input checked="" type="checkbox"/> Appeal Communication to TC (Appeal Notice, Brief, Reply Brief) <input type="checkbox"/> Proprietary Information <input type="checkbox"/> Status Letter <input checked="" type="checkbox"/> Other Enclosure(s) (please identify below): Fax cover sheet
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SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT			
Firm Name	Intel Americas		
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Typed or printed name	Alan Pedersen-Giles	Date	June 14, 2005

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Effective on 12/08/2004.  
Fees pursuant to the Consolidated Appropriations Act, 2005 (H.R. 4818).**FEE TRANSMITTAL**  
**For FY 2005**☐ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT (\$) \$500.00

**Complete if Known**

Application Number	09/996,255
Filing Date	November 28, 2001
First Named Inventor	John H. Lieder et al.
Examiner Name	W. Briney III
Art Unit	2644
Attorney Docket No.	42.P10109

**METHOD OF PAYMENT (check all that apply)**

- ☐ Check ☐ Credit Card ☐ Money Order ☐ None ☐ Other (please identify): \_\_\_\_\_
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**FEE CALCULATION****1. BASIC FILING, SEARCH, AND EXAMINATION FEES**

Application Type	FILING FEES		SEARCH FEES		EXAMINATION FEES		Fees Paid (\$)
	Fee (\$)	Small Entity Fee (\$)	Fee (\$)	Small Entity Fee (\$)	Fee (\$)	Small Entity Fee (\$)	
Utility	300	150	500	250	200	100	
Design	200	100	100	50	130	65	
Plant	200	100	300	150	160	80	
Reissue	300	150	500	250	600	300	
Provisional	200	100	0	0	0	0	

**2. EXCESS CLAIM FEES**

Fee Description	Fee (\$)	Small Entity Fee (\$)
Each claim over 20 (including Reissues)	50	25
Each independent claim over 3 (including Reissues)	200	100
Multiple dependent claims	360	180
<b>Total Claims</b>	<b>Extra Claims</b>	<b>Fee (\$)</b>
- 20 or HP = _____	x _____	= 0
HP = highest number of total claims paid for, if greater than 20.		
<b>Indep. Claims</b>	<b>Extra Claims</b>	<b>Fee (\$)</b>
- 3 or HP = _____	x _____	= 0
HP = highest number of independent claims paid for, if greater than 3.		

**3. APPLICATION SIZE FEE**

If the specification and drawings exceed 100 sheets of paper (excluding electronically filed sequence or computer listings under 37 CFR 1.52(e)), the application size fee due is \$250 (\$125 for small entity) for each additional 50 sheets or fraction thereof. See 37 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).

Total Sheets	Extra Sheets	Number of each additional 50 or fraction thereof	Fee (\$)	Fees Paid (\$)
- 100 = _____	/ 50 = _____	(round up to a whole number) x _____	= _____	

**4. OTHER FEE(S)**

Non-English Specification, \$130 fee (no small entity discount)

Other (e.g., late filing surcharge): Appeal Brief Fee

\$500.00

**SUBMITTED BY**

Signature		Registration No. 39,986 (Attorney/Agent)	Telephone 703-633-1061
Name (Print/Type)	Alan Pedersen-Giles		Date June 14, 2005

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PATENT  
Attorney Docket No. 42.P10109

**BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

**In re Patent Application of**

John H. LIEDER et al.

Application No.: 09/996,255

Filed: November 28, 2001

For: UNIVERSAL TELEPHONY INTERFACE  
POLARITY DETECTOR

Group Art Unit: 2644

Examiner: W. Briney III

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# APPEAL BRIEF

Commissioner for Patents  
P.O. Box 1450  
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Sir:

Appellants submit herewith an Appeal Brief as required by 37 C.F.R. § 41.37. This Appeal Brief is in response to the Final Office Action dated January 14, 2005 and the Advisory Action dated April 11, 2005.

## I. REAL PARTY IN INTEREST

The real party in interest is Intel Corporation, a corporation of Delaware.

## II. RELATED APPEALS AND INTERFERENCES

There are no other appeals or interferences known to Appellants which relate to, directly affect or are directly affected by the Board's decision in this appeal.

**CERTIFICATE OF TRANSMISSION**

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By: Alan Pedersen-Giles Date: June 14, 2005

### III. STATUS OF THE CLAIMS:

Claims 1-6, 12, 13, 17, 18, 20, 21, and 27-29 are pending in the application. These claims are reproduced in the attached Appendix.

Claims 1-6, 13, 17, 18, 20, 21, and 27-29 stand finally rejected under 35 U.S.C. § 103(a) over Hwang et al. (U.S. Patent No. 5,987,120) in view of Albouy (U.S. Patent No. 4,540,853). Claim 12 stands finally rejected under 35 U.S.C. § 103(a) as being unpatentable over Hwang et al. in view of Albouy, and further in view of Bijman et al. (U.S. Patent No. 6,590,973).

Notwithstanding its erroneous listing on page 5 of the Final Office Action, claim 7 was canceled by the Amendment filed September 9, 2004, and its status is canceled.

The rejections of claims 1-6, 12, 13, 17, 18, 20, 21, and 27-29 are appealed.

### IV. STATUS OF AMENDMENTS:

A Response After Final was filed on March 24, 2005, but it contained no proposed amendments.

### V. SUMMARY OF THE INVENTION:

Regarding independent claims 1, 4, and 20, a circuit for detecting a reversal in polarity may include a differential amplifier (Fig. 1, elements 103-105 and 110-115 between inputs 101/102 and node A; page 3, lines 13-15). A low pass filter (Fig. 1, elements 106 and 130 between nodes A and B; page 5, lines 7-12) may be connected in series with the amplifier. A Schmidt trigger (Fig. 1, elements 107-109, 120, 125, and 127 between node B and output 150; page 6, lines 4-9) may be connected in series with the low pass filter.

Regarding independent claim 13, the differential amplifier described above may perform the comparing, and the low pass filter may perform the filtering out a polarity reversal. The Schmidt trigger described above may perform the filtering out polarity reversals.

### VI. GROUND OF REJECTION:

- A. Claims 1-6, 13, 17, 18, 20, 21, and 27-29 stand finally rejected under 35 U.S.C. § 103(a) over Hwang et al. in view of Albouy.
- B. Claim 12 stands finally rejected under 35 U.S.C. § 103(a) as being unpatentable over Hwang et al. in view of Albouy, and further in view of Bijman et al.

VII. ARGUMENT:A. Claims 1-6, 13, 17, 18, 20, 21, and 27-29 are patentable under 35 U.S.C. § 103(a) over Hwang et al. in view of Albouy.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. See M.P.E.P. § 2143.

1. Claims 1-6, 20, 21, and 27-29:a. Hwang et al. in view of Albouy when combined fail to teach or suggest all claim limitations:

Appellants respectfully traverse the § 103(a) rejection of claims 1-6, 20, 21, and 27-29 over Hwang et al. in view of Albouy. Independent claims 1, 4, and 20 require a circuit, method and apparatus including, *inter alia*, "a low pass filter." The combination of Hwang et al. and Albouy, even if it were proper, fails to teach or suggest all elements of the claimed circuit, method and apparatus.

On page 2 of the Final Office Action, transistor 59, resistor 591, and capacitor 592 in Fig. 1 of Hwang et al. are alleged to correspond to the claimed low pass filter. These three components of Hwang et al., however, do not reasonably correspond to the claimed low pass filter.

M.P.E.P. § 2111.01 instructs that "the words of a claim must be given their 'plain meaning' unless they are defined in the specification." This section of the M.P.E.P. also includes "Claims are not to be read in a vacuum, and limitations therein are to be interpreted in light of the specification in giving them their 'broadest reasonable interpretation'." 710 F.2d at 802, 218 USPQ at 292 (quoting *In re Okuzawa*, 537 F.2d 545, 548, 190 USPQ 464, 466 (CCPA 1976)) (emphasis in original).

In the instant application, the meaning of "low pass filter" as generally understood by those skilled in the art is consistent with its use in the application: something that passes low frequencies and that does not pass high frequencies. The Examiner, in reading "low pass filter"

on an arrangement in Hwang et al. that passes high frequencies, is not only technically incorrect with regard to how a low pass filter operates, but also departs from "reasonable" claim interpretation to the realm of the unreasonable. This is improper, as will be explained below.

It is axiomatic that low pass filters do not output high frequencies. See, for example, Exhibit A ("Engineering Electronics: A Practical Approach," Robert Mauro, pp. 410 and 411), Figure 7.4-1(a). Any frequencies above the cutoff frequency  $f_c$  (i.e., in the stopband) are attenuated to zero. It is equally axiomatic that sharp signal transitions in time contain very high frequencies. This high frequency content extends to infinity, with or without a drop-off in magnitude, as illustrated in Exhibit B (Aligent Product Note 54600-4, p. 2), Figures 2(d) and 2(f). Thus, if a series of components passes a sharp signal transition without alteration, it follows that no high frequencies are removed, and that the series of components *is not* a low-pass filter.

Bearing this in mind, please refer to Exhibit C, which illustrates Fig. 2 from Hwang et al. with labels added by Appellants. Signal A illustrates the input to components 59, 591, and 592, and signal C illustrates the output of these components. Positive, sharp transitions 210, 220, 230, 240, and 250 at node A are mirrored exactly by negative, sharp transitions 215, 225, 235, 245, and 255 at node C. This is because transistor 59 turning on allows the instantaneous discharging of capacitor 592. The very high frequencies at transitions 210, 220, 230, 240, and 250 at node A are present and *unaltered* at transitions 215, 225, 235, 245, and 255 at node C. The Examiner's statement at the bottom of page 6 of the Final Office Action that "The output of node C clearly indicates the removal of fast periodic transitions" is plainly and demonstrably incorrect.

Thus, components 59, 591, and 592 fail to remove the high frequencies at transitions 210, 220, 230, 240, and 250, and they plainly do not filter out these high frequencies. Thus, components 59, 591, and 592 do not reasonably correspond to the claimed "low pass filter." For at least these reasons, the combination of Hwang et al. and Albouy fails to teach or suggest at least the low pass filter set forth in claims 1, 4, and 20.

b. There is no motivation or suggestion to combine the teachings of Hwang et al. and Albouy:

A *prima facie* case of obviousness also has not been established for claims 1, 4, and 20, because no motivation or suggestion has been shown to combine Hwang et al. and Albouy. Page 3 of the Final Office Action provides only a bare conclusion of obviousness. No evidence from either reference or other technical reasoning has been provided to support this conclusion.

Without any supporting evidence or facts, a *prima facie* case of obviousness cannot be established. See M.P.E.P. § 2142 ("The examiner bears the initial burden of factually supporting any *prima facie* conclusion of obviousness."). A *prima facie* case of obviousness also has not been established for claims 1, 4, and 20 for at least this additional reason.

In reply, and instead of providing any factual support, the Examiner argues on page 7 that because Hwang et al. does not provide details of Schmitt trigger 58, "one of ordinary skill in the art would have had to find a teaching such as Albouy in order to even practice the invention of Hwang."

First, the Examiner fabricates a "problem" that simply does not exist. Schmitt triggers as such are notoriously well known in circuit design, and any of several possible designs are readily available to designers (see, e.g., the Schmitt trigger designs in Exhibits D (Fairchild Semiconductor Application Note AN-140, June 1975) and E (found at [http://www.play-hookey.com/digital/experiments/rtl\\_schmitt.html](http://www.play-hookey.com/digital/experiments/rtl_schmitt.html))). Alternately, one of ordinary skill would simply use a prefabricated Schmitt trigger, such as that shown in Exhibit D. Rather than "hav[ing] to find a teaching such as Albouy," it is much more likely that one of ordinary skill in the art would have used his common design knowledge or used an off-the-shelf design for Schmitt trigger 58 in Hwang et al.

Even if one of ordinary skill did have to go searching for a Schmitt trigger design, the Examiner has pointed to no need or other motivation for one of ordinary skill to look to Albouy in particular. Here, Appellants specifically dispute the Examiner's unsupported assertion on page 2 of the Final Office Action that "Albouy teaches the standard construction of an analog-to-digital Schmitt trigger." Exhibits D and E each teach a Schmitt trigger construction that does not include a differential amplifier. The Examiner has provided no evidence why one of ordinary skill in the art would have chosen the Schmitt trigger design in Albouy over any of the other myriad of possible Schmitt trigger designs. Such lack of evidence means that a *prima facie* case of obviousness still has not been established for claims 1, 4, and 20.

Because a *prima facie* case of obviousness has not been established for claims 1, 4, and 20, the § 103(a) rejections of claims 1, 4, and 20 are improper and should be reversed.

Claims 2, 3, 5, 6, 21, and 27-29 are allowable at least by virtue of their dependency from claims 1, 4, and 20.



2. Claims 13, 17, and 18:

- a. Hwang et al. in view of Albouy when combined fail to teach or suggest all claim limitations:

Appellants respectfully traverse the § 103(a) rejection of claim 13 over Hwang et al. in view of Albouy. Independent claim 13 requires a method including, *inter alia*, “filtering out a polarity reversal that lasts shorter than a defined time.” The combination of Hwang et al. and Albouy, even if it were proper, fails to teach or suggest all elements of the claimed method.

Regarding independent claim 13, contrary to the allegations on pages 4 and 7 of the Office Action, the circuit in Fig. 1 of Hwang et al. does not “filter[] out a polarity reversal that lasts shorter than a defined time” as claimed. The Examiner’s argument on page 7 begins correctly by noting that the impulse on T/R is turned into a pulse (e.g., at 210 in Exhibit C) at node A, but then proceeds to ignore the rest of Fig. 2. This pulse at node A is turned into a more spread-out signal (e.g., at 215 in Exhibit C), which is truncated somewhat at node B.

The actual teaching of Fig. 2 of Hwang et al. is that the impulse on T/R is *not* “filtered out”<sup>1</sup> as claimed, because corresponding signals are present at each of nodes A, B, and C. Thus, the circuitry in Fig. 1 is not “filtering out a polarity reversal” at all.

Nor can Fig. 1 reasonably be said to be “filtering out a polarity reversal that lasts shorter than a defined time,” because the impulse on T/R is already extremely short (see 205 in T/R signal in Exhibit C), and Fig. 1 fails to filter it out (see long pulse beginning at 215 in signal C in Exhibit C). For at least these reasons, the combination of Hwang et al. and Albouy fails to teach or suggest at least the “filtering out . . .” set forth in claim 13.

Because the combination of Hwang et al. and Albouy fails to teach or suggest all elements of claims 1, 4, 13, and 20, a *prima facie* case of obviousness has not been established for these claims.

- b. There is no motivation or suggestion to combine the teachings of Hwang et al. and Albouy:

Appellants have explained above in section VII(A)(1)(a) with regard to claims 1, 4, and 20 that no suggestion or motivation to combine Hwang et al. and Albouy has been shown. Such explanation is equally applicable to claim 13, and a *prima facie* case of obviousness has not been

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<sup>1</sup> The plain meaning of “filtering out” is the removal of something by a filter.

established for this additional reason.

Because a *prima facie* case of obviousness has not been established for claim 13, the § 103(a) rejection of claim 13 is improper and should be reversed. Claims 17 and 18 are allowable at least by virtue of their dependency from claim 13.

B. Claim 12 is patentable under 35 U.S.C. § 103(a) over Hwang et al. in view of Albouy, and further in view of Bijman et al.

Regarding the rejection of claim 12; the addition of Bijman et al. fails to cure the deficiencies in Hwang et al. and Albouy noted above with respect to claim 4. Bijman et al. also fails to teach or suggest the low pass filter element of claim 4. Its addition cannot establish a *prima facie* case of obviousness for this claim, because the combination of references still fails to teach or suggest the required low pass filter. The rejection of claim 12 should be reversed for at least this reason.

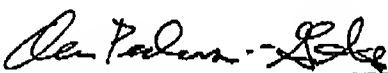
#### CONCLUSION

For the reasons set forth above, Appellants respectfully solicit the Honorable Board to reverse the Examiner's rejection of claims 1-6, 12, 13, 17, 18, 20, 21, and 27-29.

To the extent necessary, a petition for an extension of time under 37 C.F.R. § 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 50-0221 and please credit any excess fees to such deposit account.

Respectfully submitted,

Dated: June 14, 2005

  
\_\_\_\_\_  
Alan Pedersen-Giles  
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c/o Intel Americas  
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VIII. CLAIMS APPENDIX

1. (previously presented) A circuit for detecting a reversal in polarity, comprising:  
a differential amplifier;  
a low pass filter connected in series with the amplifier; and  
a Schmidt trigger connected in series with the low pass filter.
2. (previously presented) The circuit of claim 1, wherein the differential amplifier comprises an operational amplifier having a feedback loop from an output terminal thereof to an inverting input terminal thereof.
3. (previously presented) The circuit of claim 1, wherein the Schmidt trigger comprises an operational amplifier having a feedback loop from an output terminal thereof to a non-inverting input terminal thereof.
4. (previously presented) A method for detecting a polarity reversal in a telephony circuit comprising:  
providing a differential input voltage across the inputs of a differential amplifier;  
providing a low pass filter connected to an output of the differential amplifier;  
providing a Schmidt trigger connected to an output of the low pass filter; and  
determining polarity stasis or reversal based upon an output of the Schmidt trigger.
5. (previously presented) The method of claim 4, wherein the step of providing a differential input voltage across a differential amplifier comprises providing said voltage across an operational amplifier having a feedback loop from an output terminal thereof to an inverting input terminal thereof.
6. (previously presented) The method of claim 4, wherein the step of providing a Schmidt trigger comprises providing an operational amplifier having a feedback loop from an output terminal thereof to a non-inverting input terminal thereof.

7-11. (canceled)

12. (previously presented) The method of claim 4, further comprising eliminating voltage polarity transitions that are shorter than a defined time.

13. (previously presented) A method for detecting a polarity reversal in a telephony circuit comprising:

- comparing the relative voltage of two inputs;
- filtering out a polarity reversal that lasts shorter than a defined time; and
- filtering out polarity reversals where the final relative voltage is below a defined threshold.

14-16. (canceled)

17. (original) The method of claim 13, where the defined time is such so as to filter out any polarity reversal induced by an incoming ring signal.

18. (original) The method of claim 13, where the defined threshold is such so as to filter out any polarity reversal caused by any of battery voltage drops, line disconnections, or loop current drops.

19. (canceled)

20. (previously presented) An apparatus for detecting a reversal in polarity, comprising:

- a comparator;
- a low pass filter connected to an output of the comparator; and
- a hysteresis element connected to an output of the low pass filter.

21. (previously presented) The apparatus of claim 20, wherein the hysteresis element comprises a Schmidt trigger.

22-26. (canceled)

27. (original) The apparatus of claim 20, where the low pass filter is designed to filter out any polarity reversal induced by an incoming ring signal.

28. (original) The apparatus of claim 20 where the hysteresis element is such so as to filter out any polarity reversal caused by any of battery voltage drops, line disconnections, or loop current drops.

29. (original) The apparatus of claim 27 where the hysteresis element is such so as to filter out any polarity reversal caused by any of battery voltage drops, line disconnections, or loop current drops.

**IX. EVIDENCE APPENDIX**

Attached are Exhibits A-E, which were originally filed with the Response After Final on March 24, 2005, as Appendices A-E. Because the Advisory Action mailed April 11, 2005, did not state that these Exhibits were not entered, Appellants assume that they were made of record with the entry of the Response After Final filed March 24, 2005. If these Exhibits were not made of record, Appellants state the following good and sufficient reasons under 37 C.F.R. § 1.116(e). Exhibits A-E were not presented earlier than the Response After Final filed March 24, 2005, because they were needed to fully and completely respond to the Examiner's Response to Arguments in the Final Office Action dated January 14, 2005.

The Exhibits are as follows:

Exhibit A ("Engineering Electronics: A Practical Approach," Robert Mauro, pp. 410 and 411), Figure 7.4-1(a).

Exhibit B (Aligent Product Note 54600-4, p. 2), Figures 2(d) and 2(f).

Exhibit C (Fig. 2 from Hwang et al., labeled).

Exhibit D (Fairchild Semiconductor Application Note AN-140, June 1975).

Exhibit E (found at [http://www.play-hookey.com/digital/experiments/rtl\\_schmitt.html](http://www.play-hookey.com/digital/experiments/rtl_schmitt.html)))